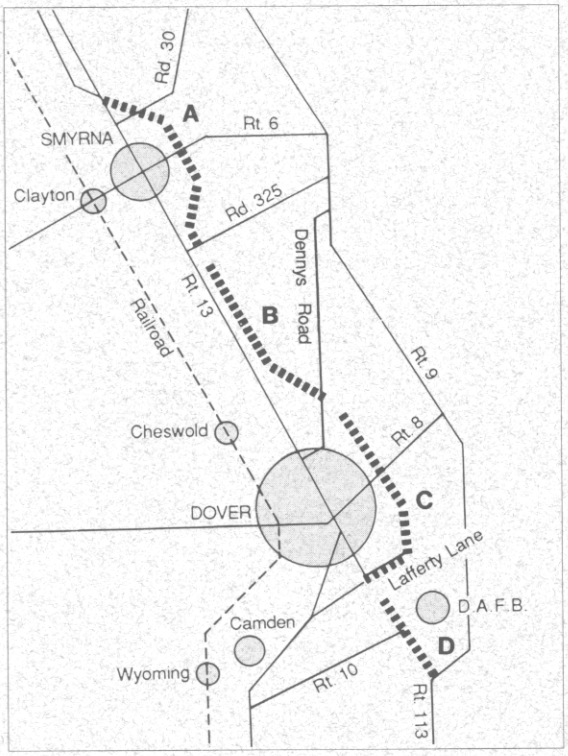
On the Road

ON THE RELIEF ROUTE-S.R.1

Route 7 to U.S. Route 113

Issue 4 Summer 1990

FIRST MAINLINE CONTRACT ADVERTISED



Advertisement for construction of the Smyrna portion **(A)** of the Smyrna-Dover Bypass began on August 14. DelDOT is waiting to receive federal and state wetland permits before accepting construction bids. However, officials anticipate an end of September deadline for the submission of bids. The contract will be awarded within 30 days after bids are received. This extended advertisement period of the first mainline contract provides contractors an opportunity to review plans and thereby increases competitive bidding. Construction will begin this winter.

Engineering design for the rural section between Smyrna and Dover (**B**) and the Dover section (**C**) is nearing completion. Advertisement for construction bids, also pending wetland permit approval, is scheduled to begin in September for section (**B**) and in October for section (**C**). Bidding for each section will last for six weeks. Advertisement of the section along U.S. 113 at the Dover Air Force Base (**D**) is on a longer timetable due to the discovery of hazardous materials and complex coordination with the U.S. Air Force. Construction is anticipated to begin in the summer of 1991.■

Delaware
Department of Transportation

Kermit H. Justice, Secretary
Robert D. Bewick Jr., Deputy Secretary
John T. Davis, Director Division of Highways

On the Road is published by the Delaware Department of Transportation and is the official newsletter of the SR-1 Relief Route project.

WETLAND PERMIT APPROVAL PENDING

U.S. Army Corps of Engineers' approval of the wetland fill permit application is still pending. The Corps has solicited public comments regarding the proposed work, and they are now under review.

The U.S. Environmental Protection Agency and U.S. Fish and Wildlife Service have requested changes to the Dennys Road interchange and the Dover toll plaza. DelDOT is reluctant to make location and design changes that are the result of a planning process that struck the best balance among community, agricultural, and environmental concerns. The agencies have been provided with details regarding the design of typical replacement sites and, as requested, DelDOT is giving top priority to restoring previously drained wetlands, mostly former farm fields.

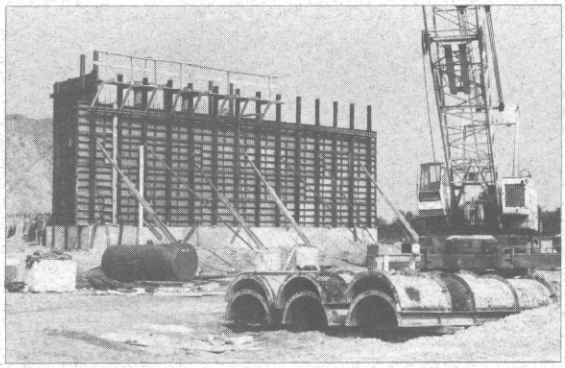
The agencies support DelDOT's plan to create and preserve contiguous forested wetlands east of Route 13. As required by the resource agencies, two acres of wetland will replace every acre filled, a net gain of 100 acres. DelDOT owns several replacement sites among the parcels severed by the right-of-way. The additional purchase of four large tracts is expected to complete the need for replacement sites and provide a "bank" of sites for future use. Formal approval is expected by September 30.■

Farm fields, with hydric soils, will revert to forested wetlands if they are no longer drained and are seeded with appropriate vegetation.

The archaeology effort of the SR-1 project has attracted archaeologists from all over the U.S. (See "Milestones", p.2)

IN THIS ISSUE

Mile STONES



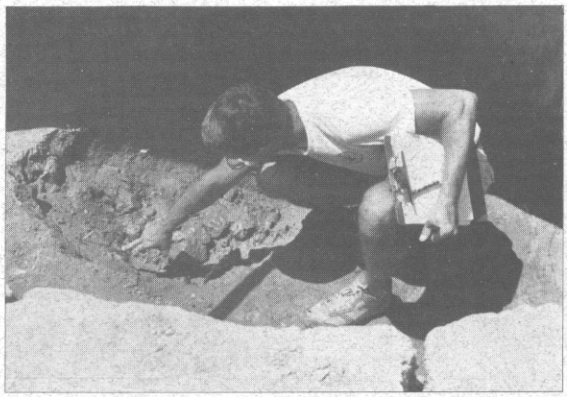
Shown above is the form work for a concrete abutment to support the Road 6 bridge near Smyrna. Excavation and build up of fill for the bridge embankments is nearly complete.

BUILDING A BRIDGE OVER THE MAINLINE

Step 1: Site Preparation
- Clearing and Grading
- Utility Relocation
- Road Realignment
- Erosion Control
- Drainage Installation
- Excavation

Step 2: Pier and Abutment Construction
- Pile Driving
- Soil Compression
- Concrete Form Work
- Fill Work
- Earthwall Construction

Step 3: Superstructure Construction
- Steel Stringers
- Guard Railing
- Concrete Decking
- Concrete Finishing



Archaeologists have uncovered many significant finds. Wade Catts, from the University of Delaware, points out a unique 19th century well found at the Moore-Taylor farm site on Rd. 331 north of Dover.

· ST. GEORGES BRIDGES - The competing concrete and steel designs for the new bridge over the C&D Canal are nearly complete and will be advertised for construction bids this winter. DelDOT is continuing to pursue federal provision of $112 million needed for construction. Meanwhile, the State has set aside money in the upcoming highway program if this funding is not forthcoming immediately. Repairs to the existing bridge, completed on May 23rd, will last 5 to 7 years when a full redecking will be required. Additional superstructure repairs will be made this fall. To build over the canal, DelDOT must obtain a permit from the U.S. Coast Guard. The State also needs easements from the U.S. Army Corps of Engineers to set piers and construct approaches to the bridge and to build temporary haul roads and construction docks. DelDOT also met navigational pilots' concerns that construction will interfere with canal commerce. Coast Guard permit approval is anticipated by November.

· ADVANCED CONTRACTS - The relocation of Lafferty Lane job was awarded in May and construction began on August 6. Tilcon Delaware, the winning contractor, is currently clearing and grading the site and is hauling in fill dirt. They expect to complete the job by the end of this year. Construction of the bridges over the Smyrna-Dover Bypass portion of the mainline is proceeding as follows:

Bridge	Contractor	Current Work	End Date
Rds. 345 & 14	James Julian	pier and abutment construction	early 1991
Road 30	A-Del	superstructure construction	early 1991
Road 6	James Julian	pier and abutment construction	early 1991
Road 66	Kuhn	pier and abutment construction	early 1991

· BORROW PIT EXEMPTION - Kent County granted DelDOT an exemption from its borrow pit moratorium for excavations involving wetland mitigation. The State is not exempt from the county's 67-day approval process for conditional uses, which involves a public hearing and site plan review by 12 agencies. Approval of five state-owned sites along the right-of-way for wetland creation is anticipated by late September. The sites have potential interim use for borrow which will save in excess of $15 million by lowering the unit cost of borrow material and by minimizing trucking costs. Also, once excavation is completed, the sites will be returned to their natural state as forested wetlands, not left barren, as is typical of commercial borrow pits.

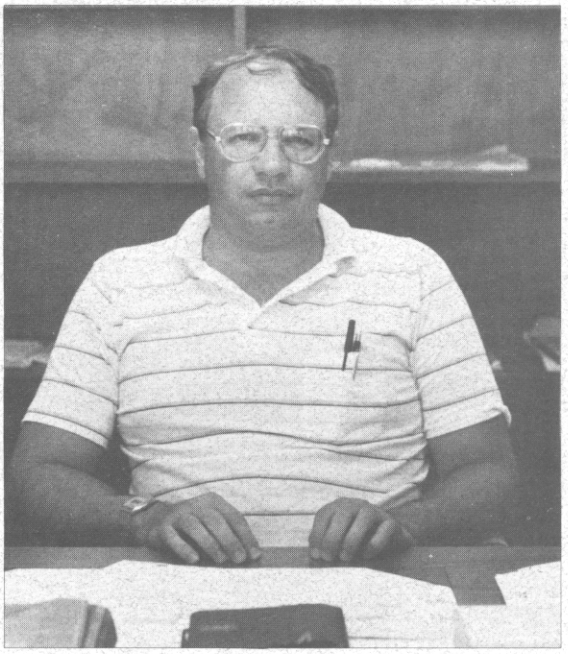
· ARCHAEOLOGY - Prior to construction of the Smyrna-Dover Bypass, archaeological investigations of significant sites are being conducted. While location design avoided the majority of sites originally identified, the bypass will impact 55 sites out of which 10 are eligible for the National Register of Historic Places and thus warrant excavation. The excavation, conducted by the University of Delaware, has led to the discovery of an 18th century cemetery near Lafferty Lane in Dover and an Indian base camp site near the Leipsic River dating to 3,000 B.C.

· RIGHT-OF-WAY ACQUISITION - Approximately 75% of the 210 properties required along the Smyrna-Dover Bypass right-of-way are now in DelDOT ownership. Appraisers are using National Wetland Inventory maps to determine wetland soils acreages. Due to restrictions on developments that result in filling of over an acre of wetlands, the amount of wetlands on a property affects its overall market value. ■

One PERSPECTIVE

"Perspective" is a regular feature of On the Road and is designed to provide readers with insights into the "behind the scenes" activities associated with the Relief Route.

In this issue, "Perspective" interviews Thomas C. Clements, State Route Construction Engineer. Tom, who was with DelDOT's North District Construction Section for 15 years, left in April to help start up the new SR-1 Construction Office under the direction of Gary Homewood, Deputy Director of Operations. The office is located at 2233 N. Dupont Highway, north of Dover.



Q. What is the responsibility of the SR-1 Construction Office ?

TC. The SR-1 Construction Office is similar to DelDOT's district offices in that we will oversee construction contracts from the start to the completion of the project. A major difference is that we are providing input to the plans and design prior to the bidding process. Ordinarily a job is sent to the district office after the contract is bid and awarded. We opened in April to plan for construction before awarding contracts. Century Engineering, the managing engineers, owns and also occupies the building, so it is easy to ask questions and provide mutual support.

Another difference is the magnitude of the Relief Route project. It is the biggest job in Delaware since the construction of I-95. While a necessary part of the district job is overlaying streets and patching roads in congested subdivisions, the Relief Route is an unusual opportunity to build a new road and new bridges on new alignment.

Q. What is involved in preparing for bids and negotiating contracts for the mainline?

TC. So far we have supported the design team in writing specifications and plan notes. Our goal has been to think like a contractor and anticipate as many problems as we can. For example, in building the Blue Route, a recent new alignment project in southeastern Pennsylvania, the state's transportation department did not address many of the problems of building across streams in their Corps of Engineers permit application. To eliminate this kind of problem, we have talked to contractors and have thought through the process of how to do each job. The Corps regulates the State, as owner, not the contractor. It forces us to tell them, prior to the bidding process, exactly how we will do the job. As a result, we have written into the plans for each SR-1 mainline job a suggested construction sequence. Once a job is awarded, at the preconstruction meeting, the contractor can propose a different approach, as long as the final product is the same.

Q. What have been the main concerns in preparing for construction?

TC. The biggest concern is the availability of enough borrow, near the construction sites, to build the road embankments. A related concern is the availability of sites for disposal of unsuitable soils. Another issue is that the Corps of Engineers and the Federal Highways Administration require that sites be identified for wetland replacement before we advertise for construction. DelDOT has a plan to address all three by using the State-acquired landlocked parcels for the right-of-way. Our soils engineer has been analyzing the types of material and potential volume of borrow available from these sites. Once excavated, the sites can be used by the contractors for the disposal of soils unsuitable for roads. These soils, while poor for roads, are good for wetlands. After construction is complete, the contractor will prepare the sites for wetland creation. We have included in the mainline contracts specifications for final grading, restoration of topsoil and muck, and seeding with vegetation for erosion control. Actual design and planting of wetland species will be done by a qualified horticulturalist under a separate contract.

The Mill Creek bridge near Smyrna is another example of coordinating a contractor's building method with Corps waterway requirements. During low tide the area becomes a mud flat, making it impossible to build a temporary road or to support construction equipment on land. The alternative is to bring the equipment in near the bridge site and then float it on barges at the site.

Q. What other kinds of innovations are involved in Relief Route construction planning?

TC. To monitor contractor schedules, we are using an approach that is new to the State called the Critical Path Method. We have set up a computer

("Perspective" continues on page 4)

DID YOU KNOW?

- An estimated 7 million cubic yards of fill will be needed to construct the 18-mile Smyrna-Dover Bypass.
- An estimated 1.5 million cubic yards of unsuitable soil material will be excavated to construct the Smyrna-Dover Bypass.
- An estimated 12,000 cubic yards of concrete will be used for construction of the Smyrna-Dover Bypass bridges.
- An estimated 150,000 cubic yards of concrete will be placed for construction of the mainline Smyrna-Dover Bypass pavement.

("Perspective" continued from page 3)

program to track the contractor's progress and determine the most timely method to complete the job at any point in time. Other innovations involve new construction techniques. The use of concrete pavement allows us to measure the smoothness or "ridability" of the road. Roughness is measured with a profilograph, which looks like a big truss on wheels and functions like a cardiogram measuring a heartbeat.

Underneath the concrete pavement will be a permeable asphalt-treated base that allows water to bleed off to the side into an underdrain system, a low-maintenance design that is new in Delaware. Under the permeable asphalt will be a soil cement base made of materials more readily available than the stone dust "crusher run" usually used in Delaware. Cracks in the road will be reduced by creating joints every 20 feet rather than every 40 feet. Doubling the number of joints will reduce by half the movement at each joint and result in a better product.

Q. What impacts on residents are anticipated during Relief Route construction?

TC. Use of the landlocked parcels, adjacent to the construction sites, will keep significant numbers of trucks transporting excavated material off local roads. The exclusive use of commercial borrow pits would have generated much more truck traffic on secondary roads, damaging the roads and increasing traffic conflicts. The round-the-clock earthwork operation will generate a great deal of dust and noise, which we will try to keep on the site as much as possible. These conditions will last for as long as two to three years. It will take an estimated 900 calendar days to construct the Smyrna section. The first two years will be devoted to earthmoving, requiring the greatest number of trucks. Paving will take place during the third year and will involve concrete-carrying trucks, but not as many. ■

To Our Readers

The State of Delaware and the consultant team are committed to continuing the citizen input process during the design and construction phases of the project. We invite you to write us with questions or comments regarding On the Road or to arrange for a presentation to bring your group up to date on the Relief Route. To receive your free copy of On the Road as well as other mailings related to the project, please write or call us with your request.

For More Information

CONTACT DelDOT
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Dover, DE 19903

- Public Information - contact Michele Ackles, Manager of Community Relations, at 739-4313.
- Design Issues or Alignment Location - contact Carolann Wicks, Project Coordinator, at 739-4341.
- Environmental Issues - contact Joe Wutka, Location Studies Engineer, at 739-4642.
- Right-of-Way Acquisition and Relocation - contact Ira White, Project Acquisitions Manager, at 739-2776.

Or CONTACT THE CONSULTANT TEAM
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- Jeremy Alvarez - Deputy Director
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